FORM PTO-1390 (Modified) (REV 10-95) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 1690

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): 09/889063

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/DE 00/04010	NOVEMBER 10, 2000	NOVEMBER 15, 1999

TITLE OF INVENTION
ROTOR BODY

APPLICANT(S) FOR DO/EO/US
Siegfried WESSELS

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 18 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
    A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☒ Certificate of Mailing by Express Mail
19. ☐ Other items or information:

EL 364 015 726 US

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
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20. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☐	Search Report has been prepared by the EPO or JPO	$930.00
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482)	$720.00
☐	No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))	$790.00
☒	Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO	$1,070.00
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)	$98.00

ENTER APPROPRIATE BASIC FEE AMOUNT =	$1,000.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	$0.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	16 - 20 =	0	x $18.00	$0.00	
Independent claims	1 - 3 =	0	x $80.00	$0.00	
Multiple Dependent Claims **(check if applicable)**.			☐	$0.00	
TOTAL OF ABOVE CALCULATIONS =				$1,000.00	
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable)**.			☐	$0.00	
SUBTOTAL =				$1,000.00	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).			+	$0.00	
TOTAL NATIONAL FEE =				$1,000.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☐	$0.00	
TOTAL FEES ENCLOSED =				$1,000.00	
				Amount to be: refunded	$
				charged	$

☐ A check in the amount of to cover the above fees is enclosed.

☒ Please charge my Deposit Account No. **19-4675** in the amount of **$1,000.00** to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **19-4675** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

STRIKER, STRIKER & STENBY
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SIGNATURE

MICHAEL J. STRIKER
NAME

27233
REGISTRATION NUMBER

JULY 11, 2001
DATE

UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Group: Attorney Docket # 1690

Applicant(s) : WESSELS, S.

Serial No. :

Filed : Simultaneously

For : ROTOR BODY

SIMULTANEOUS AMENDMENT

July 10, 2001

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified application.

With the present Amendment applicant has amended the claims so as to eliminate their multiple dependency.

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

Claims

1. A rotor body, in particular for the rotor of the starter or the starter-generator of an internal combustion engine, with a hub (4) extending coaxial to the rotational axis (A) of the rotor, characterized in that the rotor body is comprised of a rotationally symmetrical base body (5), which constitutes the hub (4), and one or more lamellas (1, 2, 3), which each have a continuously uniform thickness in the direction of the rotational axis (A) of the rotor.

2. The rotor body according to claim 1, characterized in that it is a non-rotationally symmetrical rotor body.

3. The rotor body according to [one of the preceding claims] claim 1, characterized in that one or more of the lamellas (1, 2, 3) are stamp-bundled lamellas or are individually produced lamellas.

4. The rotor body according to [one of the preceding claims] claim 1, characterized in that individual lamella components and/or individual lamellas and/or the base body (5) are connected through the use of connecting means (8).

5. The rotor body according to [one of the preceding claims] claim 1, characterized in that the connecting means (8) are constituted by screws and/or pins and/or bolts and/or rivets.

6. The rotor body according to [one of the preceding claims] claim 1, characterized in that a region (6) for containing the rotor winding (7) is provided on its outer

circumference region, which is constituted by one or more lamellas (1, 2, 3).

7. The rotor body according to [one of the preceding claims] claim 1, characterized in that one or more lamellas (1, 2, 3) constitute at least one connecting region (11, 14), which is provided for connecting the rotor body to at least one clutch element.

8. The rotor body according to [one of the preceding claims] claim 1, characterized in that at least one clutch element is constituted by an intermediary clutch flange and/or a clutch element is constituted by a clutch thrust plate (12).

9. The rotor body according to [one of the preceding claims] claim 1, characterized in that means (8) are provided for fastening a reinforcing ring (10), which covers at least parts of the rotor winding (7).

10. The rotor body according to [one of the preceding claims] claim 1, characterized in that the reinforcing ring is constituted by a deep-drawn part or a formed part.

11. The rotor body according to [one of the preceding claims] claim 1, characterized in that its outer circumference is cylindrical and that two essentially annular lamellas (2, 3) are provided, which each constitute a section of the outer circumference.

12. The rotor body according to [one of the preceding claims] claim 1, characterized in that at least one of the lamellas (2) is connected to the base body.

13. The rotor body according to [one of the preceding claims] claim 1, characterized in that three essentially annular lamellas (1, 2, 3) are provided, each of which constitutes a section of the cylindrical outer circumference region of the rotor body, and that only the middle lamella (2) is connected to the base body (5).

14. The rotor body according to [one of the preceding claims] claim 1, characterized in that the inner geometry of at least one essentially annular lamella (1) constitutes teeth (13) that serve as a pulse generator.

15. The rotor body according to [one of the preceding claims] claim 1, characterized in that adjusting springs or similarly acting means are provided in order to encourage the torque transmission between the rotor body components.

16. The rotor body according to [one of the preceding claims] claim 1, characterized in that the base body (5) is a turned part and/or a stamped, drawn, and bent part and/or a stamp-bundled part.

Claims

1. A rotor body, in particular for the rotor of the starter or the starter-generator of an internal combustion engine, with a hub (4) extending coaxial to the rotational axis (A) of the rotor, characterized in that the rotor body is comprised of a rotationally symmetrical base body (5), which constitutes the hub (4), and one or more lamellas (1, 2, 3), which each have a continuously uniform thickness in the direction of the rotational axis (A) of the rotor.

2. The rotor body according to claim 1, characterized in that it is a non-rotationally symmetrical rotor body.

3. The rotor body according to claim 1, characterized in that one or more of the lamellas (1, 2, 3) are stamp-bundled lamellas or are individually produced lamellas.

4. The rotor body according to claim 1, characterized in that individual lamella components and/or individual lamellas and/or the base body (5) are connected through the use of connecting means (8).

5. The rotor body according to claim 1, characterized in that the connecting means (8) are constituted by screws and/or pins and/or bolts and/or rivets.

6. The rotor body according to claim 1, characterized in that a region (6) for containing the rotor winding (7) is provided on its outer circumference region, which is constituted by one or more lamellas (1, 2, 3).

7. The rotor body according to claim 1, characterized in that one or more lamellas (1, 2, 3) constitute at least one connecting region (11, 14), which is provided for connecting the rotor body to at least one clutch element.

8. The rotor body according to claim 1, characterized in that at least one clutch element is constituted by an intermediary clutch flange and/or a clutch element is constituted by a clutch thrust plate (12).

9. The rotor body according to claim 1, characterized in that means (8) are provided for fastening a reinforcing ring (10), which covers at least parts of the rotor winding (7).

10. The rotor body according to claim 1, characterized in that the reinforcing ring is constituted by a deep-drawn part or a formed part.

11. The rotor body according to claim 1, characterized in that its outer circumference is cylindrical and that two essentially annular lamellas (2, 3) are provided, which each constitute a section of the outer circumference.

12. The rotor body according to claim 1, characterized in that at least one of the lamellas (2) is connected to the base body.

13. The rotor body according to claim 1, characterized in that three essentially annular lamellas (1, 2, 3) are provided, each of which constitutes a section of the cylindrical outer circumference region of the rotor body,

and that only the middle lamella (2) is connected to the base body (5).

14. The rotor body according to claim 1, characterized in that the inner geometry of at least one essentially annular lamella (1) constitutes teeth (13) that serve as a pulse generator.

15. The rotor body according to claim 1, characterized in that adjusting springs or similarly acting means are provided in order to encourage the torque transmission between the rotor body components.

16. The rotor body according to claim 1, characterized in that the base body (5) is a turned part and/or a stamped, drawn, and bent part and/or a stamp-bundled part.

Rotor Body

The invention relates to a rotor body, in particular for the rotor of the starter or the starter-generator of an internal combustion engine, with the characteristics mentioned in the preamble of claim 1.

Prior Art

Rotor bodies of this generic type are known. Rotor bodies of this kind can be components of an electric motor which in turn is a component of a starter for the motor of an internal combustion engine.

The electric motors used to start internal combustion engines are direct-current motors, alternating current motors, and rotary current motors. The electrical direct-current inverse-speed motor is particularly suitable for use as a starter motor since it produces the high initial torque required to overcome the initial rotation resistance and to accelerate the [drivetrain] masses.

The torque of the starter is predominantly transmitted via a pinion and a ring gear to the flywheel on the crankshaft of the internal combustion engine. Occasionally, though, V-belts, toothed belts, chains or direct transmission to the crankshaft are also chosen. However, due to the high ratio of transmission between the starter pinion and the ring gear of the motor disk flywheel, the pinion starter is best suited for a starting procedure since it can be designed for a lower torque at high speeds. This design

makes it possible to keep the dimensions and weight of the starter down.

In addition to starters of this kind, so-called starter-generators are also known, which can be used as the starter for the internal combustion engine, as a drive motor of the vehicle, and as generators.

The coupling with the internal combustion engine and/or a transmission as well as the disposition of such starter-generators can differ from the simple starter due to the expanded intended application.

However, such starter-generators frequently have a rotor body of the type that defines the species.

The form of the rotor body of this generic type is frequently complex. This can depend, for example, on screw-connecting pieces to be provided, to which an intermediary clutch flange can be fastened. This complex form of the rotor body has the disadvantage that the rotor body production is very costly because it is only possible through a combination of turning, milling and/or stamping processes executed on one and the same work piece. The production of the rotor body is therefore time-consuming, costly, and in addition, a large quantity of waste is generated during production.

Advantages of the Invention

The rotor body according to the invention can be produced comparatively simply and therefore inexpensively.

Because the rotor body is comprised of a rotationally symmetrical base body, which constitutes the hub, and one or more lamellas, which each have a continuously uniform thickness in the direction of the rotational axis of the rotor, the individual components of the rotor can be at least predominantly produced by means of a single machining method which is particularly suited for the respective form.

The rotor body design according to the invention is particularly advantageous if it is a non-rotationally symmetrical rotor body which would be particularly expensive to produce by means of known machining methods.

The production of the rotationally symmetrical base body which constitutes the hub can take place, for example, by means of turning.

However, it is likewise conceivable to produce the hub as a stamped, drawn, and bent part which can, for example, be riveted to the lamellas.

The term "rotationally symmetrical" should not be understood here in the strictly mathematical sense, but rather with regard to the machining method used, so that for example bores which are provided at separate locations on a base body produced by turning do not absolutely have to be symmetrical.

The lamellas can be stamp-bundled or can be individually produced lamellas. The use of stamp-bundled lamellas, which can be comprised of a number of congruent plates produced by means of stamping, permits a particularly inexpensive production.

Optionally, the base body can also be a stamp-bundled part so that as a whole, there is a total of one bundled unit after assembly of the rotor.

In order to assemble the rotor body, it is necessary that the individual lamellas be connected to the base body. If one or more of the individual lamellas is in the form of stamp-bundled lamellas, the individual lamellas can first be assembled using suitable connecting means and then can be connected to the base body. It is likewise conceivable for both the individual lamella components and the base body to be connected using the same connecting means.

These connecting means can, for example, be constituted by screws and/or pins and/or bolts and/or rivets.

Preferably, the outer circumference region of the rotor body is constituted by one or more lamellas. The rotor winding, which as a rule is provided on the outer circumference region, can then be disposed directly on the lamella or lamellas.

The transmission of force from the rotor body to the clutch then preferably takes place directly by means of one or more lamellas so that the connection between the base body and the lamellas is only subjected to a smaller amount of stress than would be the case if the force were to be transmitted from the lamellas into the base body and from there into the clutch.

For purposes of the above-mentioned transmission of force, one or more lamellas preferably constitute a

connecting region which is provided for connecting the rotor body to at least one clutch element.

A clutch element can, for example, be constituted by an intermediary clutch flange. Alternatively, or in addition, the clutch element can also, for example, be constituted by a clutch thrust plate, where the specific design of the clutch elements can depend, for example, on the starter type.

A reinforcing ring can be provided to protect the rotor winding. This reinforcing ring is connected to the rotor body by connecting means, wherein these connecting means can either be constituted by the connecting means used to connect the rotor components or can be separate from them. The reinforcing ring itself can either be a deep-drawn part or a formed part.

For the case in which it is a short circuit rotor that represents a cage rotor, the short circuit cage, which is used in this type of rotor and is comprised of rods and short circuit rings or can be embodied of one piece, constitutes the rotor winding.

The outer circumference of the rotor body is preferably cylindrical wherein for example, two essentially annular lamellas can each constitute a section of this outer circumference.

At least one of the lamellas is preferably connected to the base body.

If three essentially annular lamellas are provided, each of which constitutes a section of the cylindrical outer circumference region of the rotor body, preferably only the middle lamella is connected to the base body, where in this instance, the lamellas are interconnected through the use of connecting means which can simultaneously be used for the attachment of the above-mentioned reinforcing ring.

If teeth serving as a pulse generator are provided, they are preferably constituted by the inner geometry of at least one essentially annular lamella.

Depending upon the embodiment, adjusting springs or similarly acting means can be provided to encourage the torque transmission between the individual rotor body components; for reasons relating to cost and weight, they should only be used if the specific embodiment actually requires it.

The above-mentioned and additional advantageous embodiments and modifications of the invention ensue from the dependent claims.

Drawings

Exemplary embodiments of the invention, in which the rotor body according to the invention has a non-rotationally symmetrical form and is provided for use in a starter-generator for an internal combustion engine, will be explained in detail below in conjunction with the accompanying drawings.

Fig. 1 is a first sectional view of a known, non-rotationally symmetrical rotor body;

Fig. 2 is a second sectional view of the rotor body according to Fig. 1;

Fig. 3 is a perspective representation of the known rotor body according to Fig. 1;

Fig. 4 is a partially sectional view of a known rotor which contains the known rotor body according to Fig. 1;

Fig. 5 is a partially sectional view of a first embodiment of the rotor body according to the invention,

Fig. 6 is a sectional view of a second embodiment of the rotor body according to the invention;

Fig. 7 shows a lamella which is a component of the rotor body according to the invention, according to Fig. 6.

Description of the Exemplary Embodiments

Figs. 1 to 3 depict a non-rotationally symmetrical rotor body of the type that defines the species, which belongs to the prior art and is labeled as a whole with the reference numeral 16.

It can easily be inferred, particularly from Fig. 3, that a rotor body of this kind, whose asymmetry is due, for example, to the presence of screw-connecting pieces 17, can be manufactured of one piece only as an extremely complex turned and milled part, which results in high costs and a large amount of waste.

Fig. 4 shows a known rotor, which includes the rotor body 16 according to Figs. 1 to 3. In this known rotor, the torque exerted on the rotor winding and/or the short circuit cage 7 is transmitted to the rotor body 16 by means of adjusting springs 15. The force is transmitted from the rotor body 16 to a clutch device that is not shown.

In the embodiment of the current invention shown in Fig. 5, the rotor body is comprised of a rotationally symmetrical base body 5 and three lamellas 1, 2, 3. Because of the rotational symmetry of the base body 5 comprising the hub 4, it can be manufactured in one work cycle, for example by means of turning. The non-rotationally symmetrical sections of the rotor body are constituted by the lamellas 1, 2, 3, which always have the same thickness in the direction of the rotational axis A.

The three different lamellas 1, 2, 3 are combined into a bundle by means of a connecting pin 8.

In comparison to the known rotor body according to Figs. 1 to 3, the design according to the invention permits a low-waste production since less stamping waste occurs.

In addition, the rotor body according to the invention permits a more highly integrated design since the pulse

generator lamellas used in the prior art are constituted by the inner geometry of the lamella 1, in fact by the teeth 13.

The inner contour of the lamella 2 constitutes the receiving bore of the hub 4, which is constituted by the base body 5.

The inner contour of the lamella 3 replaces the screw-connection pieces 17 provided in the prior art according to Figs. 1 to 3, which had to be produced at a high cost in terms of materials and machining.

In the embodiment shown in Fig. 5, the rotor winding 7 is disposed in the cylindrical outer circumference region of the rotor body, which is constituted by the lamellas 1, 2, 3. As a result of this design, the force can be transmitted directly from the bundle constituted by the lamellas 1, 2, 3 into the clutch. In Fig. 5, a clutch thrust plate 12 is shown and the intermediary flange of the clutch can be screw-connected in region 11.

The adjusting springs 15 required for torque transmission in the prior art according to Figs. 1 to 3 can be omitted in the embodiment shown in Fig. 5 because the output does not take place via the base body 5, as mentioned above.

The reinforcing ring 10 shown in Fig. 5, which can be a deep-drawn part or a formed part, is preferably fastened by means of the connecting pin 8, but other types of attachment are also conceivable, for example screws, rivets, or caulking.

Fig. 6 shows an alternative embodiment in which the rotor body is constituted by a base body 5 and two lamellas 2, 3.

In this embodiment, the lamella 3 is connected via connecting means 8 to the base body 5, which in this instance also constitutes the hub 4. The lamella 2 encompasses the base body 5 coaxially, where the thickness of the lamella 2 is adapted to the cylindrical outer circumference region of the base body 5. In this embodiment as well, the screw-connection pieces are constituted by the lamella 3.

In this embodiment, the torque exerted on the rotor winding 7 can be transmitted to the base body 5, for example by means of adjusting springs not shown here. The force can then be transmitted from the base body 5, via connecting means 8 constituted by bolts, to the lamella 3, and from there, for example, to the clutch.

Fig. 7 is a perspective depiction of the lamella 3; it is not necessary for the design of this lamella to differ from the design of the lamella 3 according to Fig. 5.

Independent of the respective embodiment, the individual lamellas 1, 2, 3 can be separate or in the form of a stamped bundle; stamp-bundling is considered to be particularly inexpensive.

Although the exemplary embodiments involve a non-rotationally symmetrical rotor body, the present invention is not limited to a rotor body of this kind.

As has already been mentioned, it is likewise conceivable for the entire rotor body to be in the form of a bundled unit.

Claims

1. A rotor body, in particular for the rotor of the starter or the starter-generator of an internal combustion engine, with a hub (4) extending coaxial to the rotational axis (A) of the rotor, characterized in that the rotor body is comprised of a rotationally symmetrical base body (5), which constitutes the hub (4), and one or more lamellas (1, 2, 3), which each have a continuously uniform thickness in the direction of the rotational axis (A) of the rotor.

2. The rotor body according to claim 1, characterized in that it is a non-rotationally symmetrical rotor body.

3. The rotor body according to one of the preceding claims, characterized in that one or more of the lamellas (1, 2, 3) are stamp-bundled lamellas or are individually produced lamellas.

4. The rotor body according to one of the preceding claims, characterized in that individual lamella components and/or individual lamellas and/or the base body (5) are connected through the use of connecting means (8).

5. The rotor body according to one of the preceding claims, characterized in that the connecting means (8) are constituted by screws and/or pins and/or bolts and/or rivets.

6. The rotor body according to one of the preceding claims, characterized in that a region (6) for containing the rotor winding (7) is provided on its outer circumference

region, which is constituted by one or more lamellas (1, 2, 3).

7. The rotor body according to one of the preceding claims, characterized in that one or more lamellas (1, 2, 3) constitute at least one connecting region (11, 14), which is provided for connecting the rotor body to at least one clutch element.

8. The rotor body according to one of the preceding claims, characterized in that at least one clutch element is constituted by an intermediary clutch flange and/or a clutch element is constituted by a clutch thrust plate (12).

9. The rotor body according to one of the preceding claims, characterized in that means (8) are provided for fastening a reinforcing ring (10), which covers at least parts of the rotor winding (7).

10. The rotor body according to one of the preceding claims, characterized in that the reinforcing ring is constituted by a deep-drawn part or a formed part.

11. The rotor body according to one of the preceding claims, characterized in that its outer circumference is cylindrical and that two essentially annular lamellas (2, 3) are provided, which each constitute a section of the outer circumference.

12. The rotor body according to one of the preceding claims, characterized in that at least one of the lamellas (2) is connected to the base body.

13. The rotor body according to one of the preceding claims, characterized in that three essentially annular lamellas (1, 2, 3) are provided, each of which constitutes a section of the cylindrical outer circumference region of the rotor body, and that only the middle lamella (2) is connected to the base body (5).

14. The rotor body according to one of the preceding claims, characterized in that the inner geometry of at least one essentially annular lamella (1) constitutes teeth (13) that serve as a pulse generator.

15. The rotor body according to one of the preceding claims, characterized in that adjusting springs or similarly acting means are provided in order to encourage the torque transmission between the rotor body components.

16. The rotor body according to one of the preceding claims, characterized in that the base body (5) is a turned part and/or a stamped, drawn, and bent part and/or a stamp-bundled part.

Abstract

The invention relates to a rotor body, in particular for the rotor of the starter or the starter-generator of an internal combustion engine, with a hub (4) extending coaxial to the rotational axis (A) of the rotor.

The rotor body is comprised of a rotationally symmetrical base body (5), which constitutes the hub (4), and one or more lamellas (1, 2, 3), which each have a continuously uniform thickness in the direction of the rotational axis (A) of the rotor.

(Fig. 5)

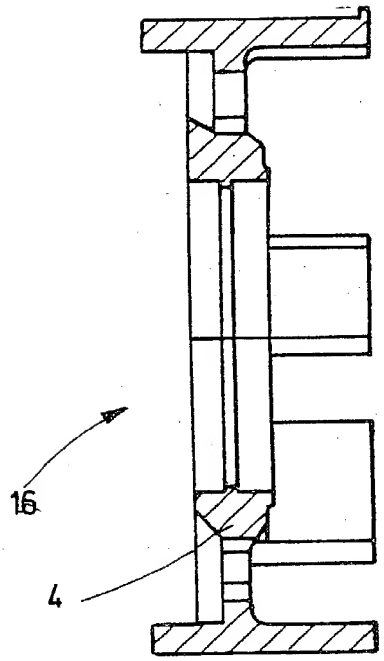

Fig.1

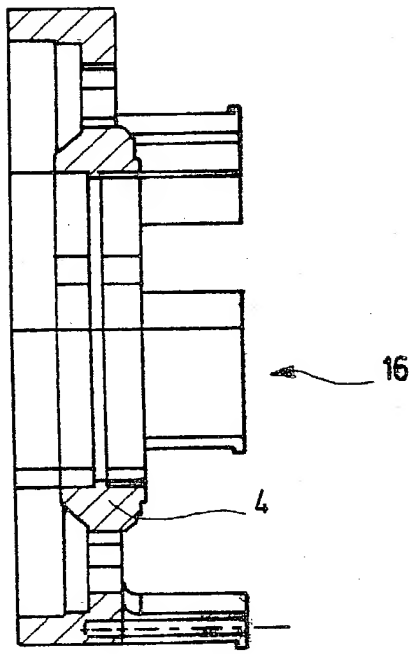

Fig.2

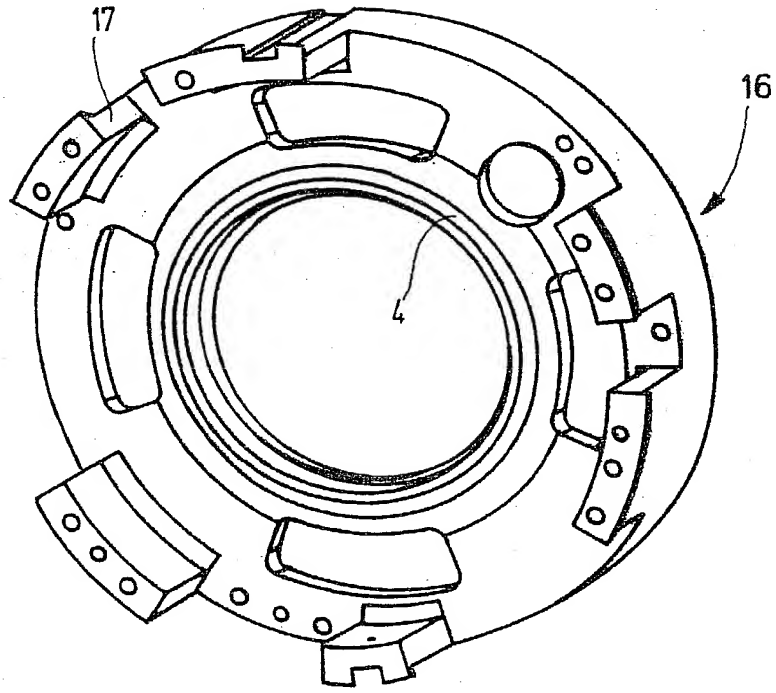

Fig.3

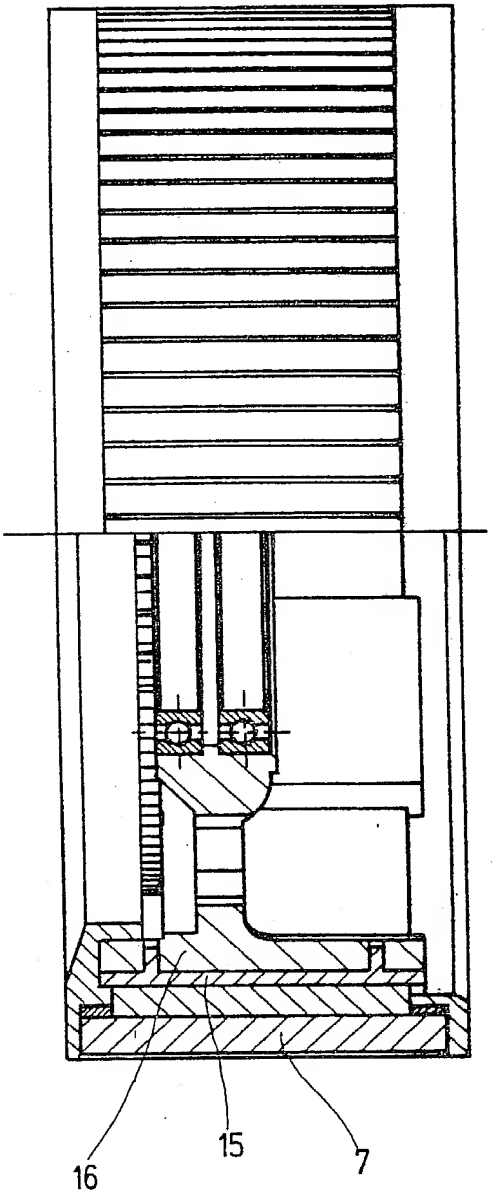

Fig.4

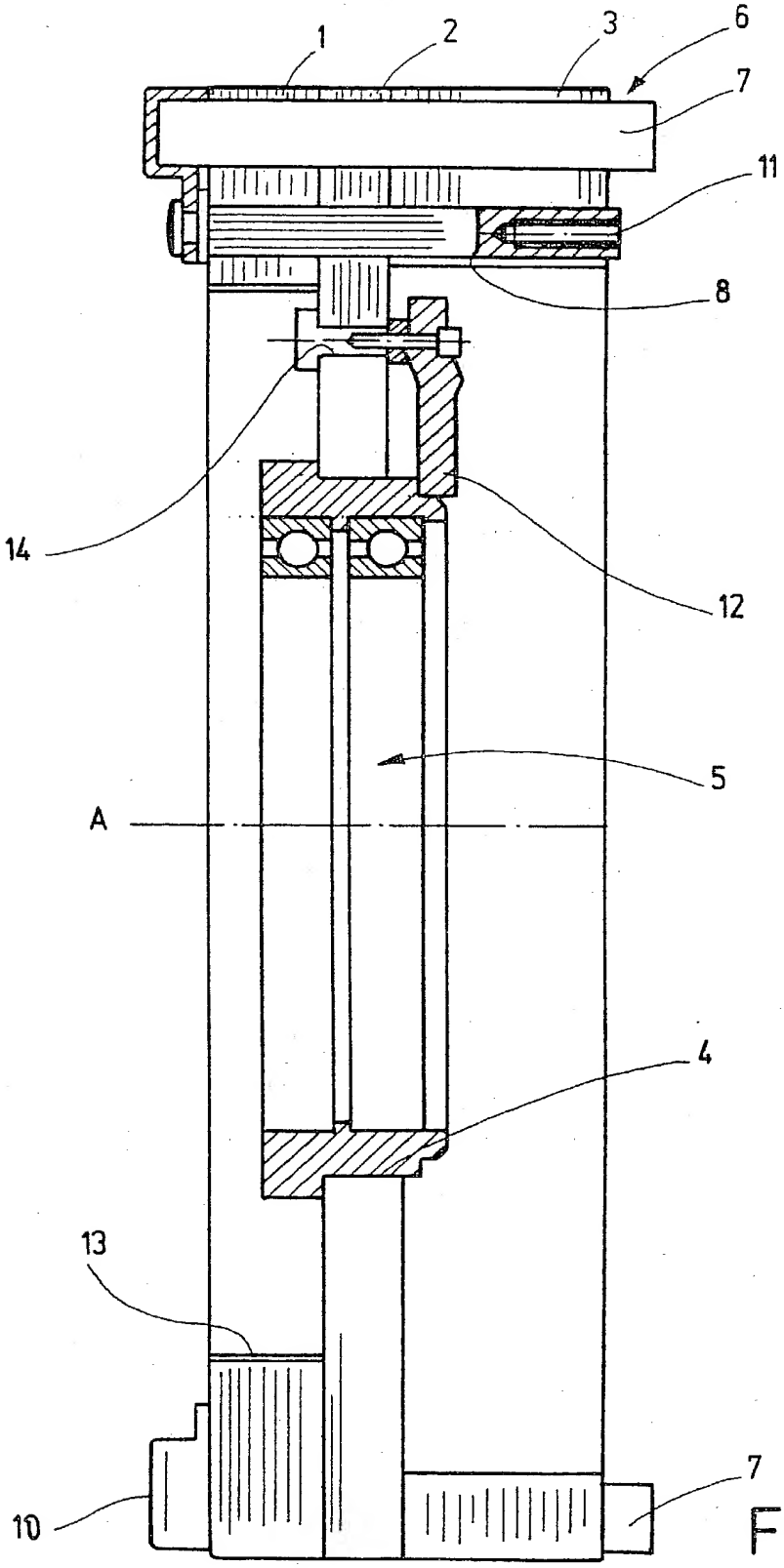

Fig.5

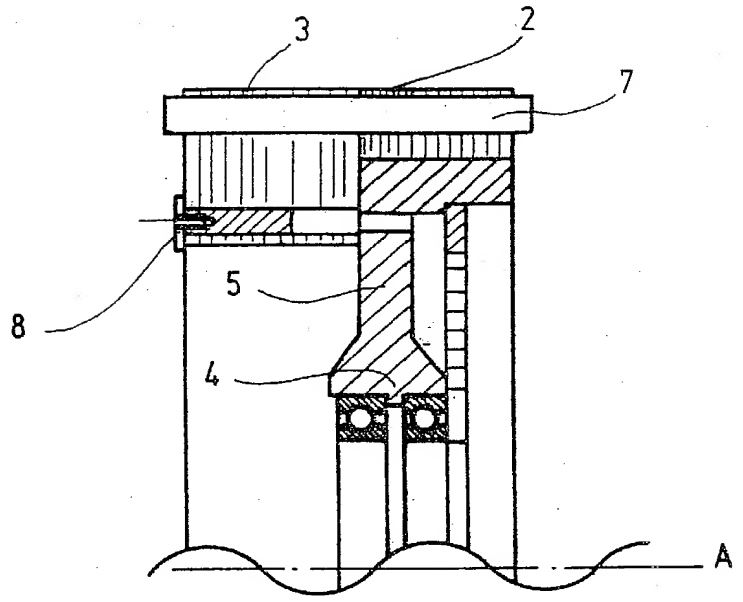

Fig.6

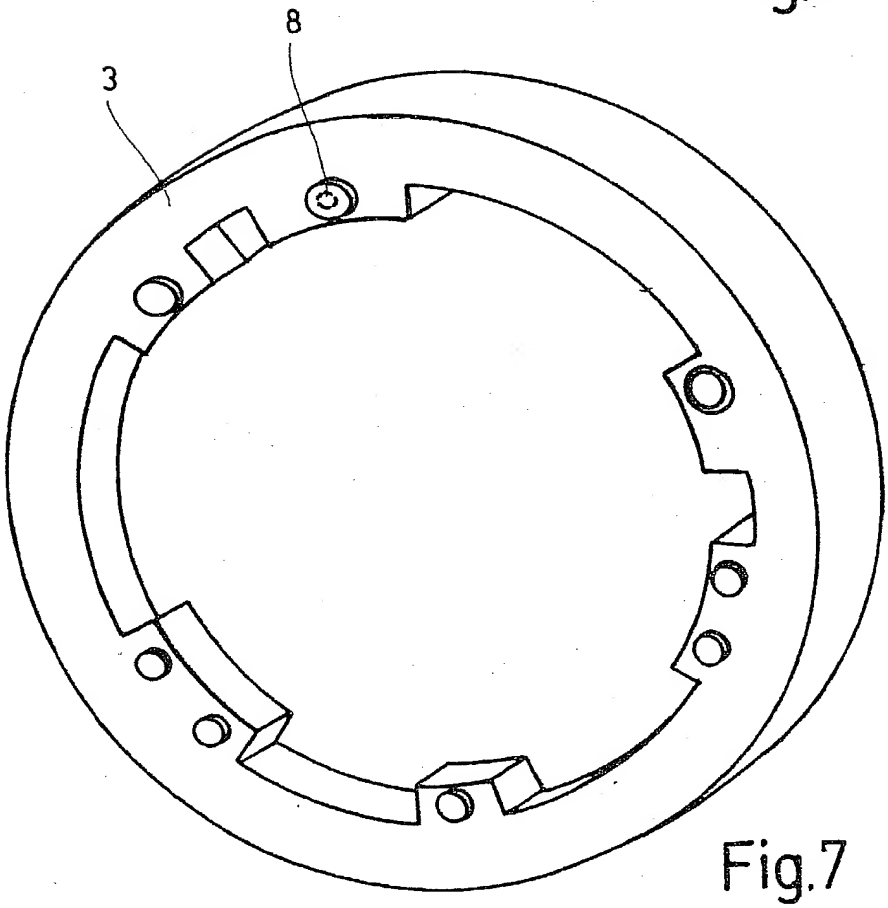

Fig.7

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Full Name of Third Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Fourth Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Fifth Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Sixth Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Seventh Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Eighth Inventor:	Citizenship:	
Signature:	Date:	Residence and Full Postal Address:
Full Name of Ninth Inventor:	Citizenship:	

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DECLARATION AND POWER OF ATTORNEY FOR NATIONAL STAGE OF PCT PATENT APPLICATION

As a below-named inventor, I hereby declare that:

Siegbert WESSELS

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **ROTOR BODY** the specification of which was filed as PCT International Application number PCT/DE 00/04010 on November 10, 2000.

I hereby state that I believe the named inventor or inventors in this Declaration to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365 (b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior foreign application(s):			Priority claimed:	
199 55 050.6	GERMANY	NOVEMBER 15, 1999	X	
(Number)	(Country)	(Date filed)	Yes	No
(Number)	(Country)	(Date filed)	Yes	No

As a named inventor, I hereby appoint the following attorney to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statement may jeopardize the validity of the application or any patent issued thereon.